

A NEW SPECIES OF LANTERN FISH FROM NEW ZEALAND,

With remarks on the genus *Serpa* (Family MYCTOPHIDAE).

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Family MYCTOPHIDAE.

Genus *SERPA* Cloquet, 1827.

Serpa Cloquet, Dict. Sci. Nat., xlviii., 1827, 190. Logotype, *S. crocodilus* Cloquet, selected by Whitley, Rec. Austr. Mus., xix., 1933, 64, q.v. for references and synonyms.

SERPA CONSPICUA, sp. nov.

D. 16; A. 20; P. 15; V. 1/8; C. 22?; L.lat. 38 or 39; L.tr. 3/1/3.

Head (52 mm.) 3.6, depth of body (33) 5.6 in standard length (186).

Eye (11) 4.7, interorbital (12.5) 4 in head.

Head tapering, the lower jaw longer than the upper. Orbital margin not cutting upper profile. Eye large. Cheeks with large weak cycloid scales. Maxillary and mandible extending far back, covered (even externally) with villiform teeth. Similar teeth in small patches on vomer and palatines, pterygoids and hyoid. The floor of the mouth is occupied by the tongue and branchial arches with their low, denticulated gill-rakers.

Photophores and other luminous organs: The photophores are very difficult to distinguish, partly because the specimen is slightly damaged, partly because they do not appear to be bilaterally symmetrical, and owing to the presence of rudimentary or accessory photophores and luminous scales in some places. The photophores are not divided by septa. So far as can be determined, they are as shown in the figure herewith, and their formula appears to be as follows:—

Br: 0. Max: 1. Op: 0. PLO: 1. PVO: 3 plus 1 on base of pectoral and one or two behind same. PO: 5. VLO: 2. VO: 4. SAO: 3. POL: 1. AO ant., about 10, but there is a double series, a second row developing on the small scales along anal base.

PA. (AO post of authors) = circa 9. PRC: 3 + 1 at end of L.lat. No photophores above the lateral line.

The photophore at the end of the maxillary is distinctive. The VLO is well below the lateral line. There appear to be accessory photophores developing in the PVO and AO ant. series, whilst the AO post (or PA photophores, as I prefer to call them) run almost continuously into the Prc, though this again is a little uncertain as the tail is damaged. There may be one or two rows of scales between those bearing the ventral photophores and those of the lateral line.

Luminous glands and scales are present, though not always bilaterally symmetrical. Glands are indistinctly defined on preorbital and along posterior parts of mandible. A small antorbital organ. A luminous gland at pectoral axil, and a large patch below caudal peduncle. Some luminous scales just behind termination of anal fin. No luminous glands are apparent above caudal peduncle.

Body and fins: General habit rather robust, caudal peduncle deep. Lateral line scales enlarged. Dorsal fin with sixteen rays, of which the first three are spiniform. Anal fin with twenty rays, the last having its base slightly in advance of the vertical of the adipose dorsal. Pectorals

and ventrals long, reaching to anal. Caudal damaged, with hook-like rays above and below peduncle. Many of the scales are missing, so have been somewhat restored in the accompanying diagram.

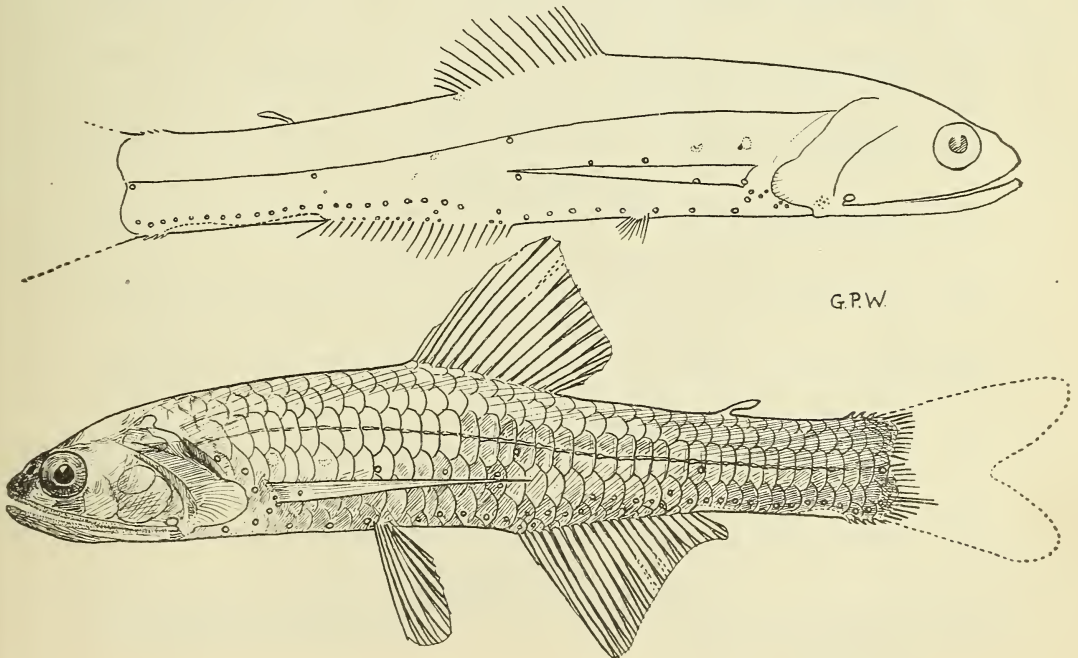
Colour: In alcohol, very dark brown, almost blackish, the fins whiter and the scaleless areas yellowish-brown. Photophores blue with blackish borders. Eye very dark bluish-black; pupil horn-coloured. Interior of mouth blackish.

Material: Described and figured from the unique holotype of the species, a specimen 186 mm. in standard length and probably nine inches overall originally, but the caudal fin has been broken. Austr. Mus., regd. No. IA 6500; specimen returned to the Canterbury Museum, Christchurch, New Zealand.

Locality: Kaikoura, New Zealand, August, 1935. From stomach of a groper caught in 80 fathoms by Mr. J. Timms. Received for identification from Professor R. Speight.

Affinities: The present species differs from its congeners in its large size, the unusual length of the pectoral fin, the number of dorsal and anal finrays and lateral line scales, the arrangement of the photophores, and in general proportions. It may approach the briefly described *S. australis* (Taaning, 1932), but that form is linked by its author with *alatus*, which is a species quite unlike the novelty described above.

The genus *Serpa*, in the broadest sense, embraces the lantern fishes referred to the genus *Lampanyctus* by most authors dealing with the group. These species are numerous and widely distributed and have been admirably reviewed by Parr in the Scientific Results of the Third Oceanographic Expedition of the "Pawnee", published as the *Bulletin of the Bingham Oceanographic Collection*, Vol. iii., Art. 3, December, 1928. His key to the



genus "*Lampanyctus*" treats with forty-six distinct species from various parts of the world, all that were known at the time. To bring this list up to date, it will be necessary to add the following species, which have been described since:—

SERPA AUSTRALIS (Taaning).

1932. *Lampanyctus alatus australis* Taaning, Vid. Medd. Dansk nat. Foren, xciv., 145. Off New Zealand, Australia, and Cape of Good Hope.

1933. *Serpa australis* Whitley, Rec. Austr. Mus., xix., 65. Ex Taaning.

1934. *Serpa australis* Whitley, Fish N.S. Wales (McCulloch), ed. 3, suppl.

SERPA BENSONI Fowler.

1934. *Serpa bensoni* Fowler, Proc. Acad. Nat. Sci. Philad., lxxxv., 1933 (1934), 286, fig. 46. Japan.

SERPA BERINGENSIS (Schmidt).

1933. *Lampanyctus beringensis* Schmidt, Copeia, 1933, No. 3, October 15, 1933, 131 and fig. Off Bering Island. 93 fathoms.

SERPA BLACKI Fowler.

1934. *Serpa blacki* Fowler, Proc. Acad. Nat. Sci. Philad., lxxxv., 1933 (1934), 284, fig. 44. Mindanao, Philippine Islands.

SERPA CONSPICUA, sp. nov. *supra*.

SERPA FRASERI (Fraser-Brunner).

1931. *Lampanyctus fraseri* Fraser-Brunner, Ann. Mag. Nat. Hist. (10), viii., 1931, 224, fig. 4. West Africa.

SERPA FRETA, sp. nov.

1931. *Lampanyctus macropterus taningi* Angel and Verrier, Ann. Inst. Oceanogr. (n.s.), x., 5, 1931, 124, fig. 2. North of New Guinea. Name preoccupied by *Lampanyctus taaningi* Parr, Proc. U.S. Nat. Mus., lxxvi., 1929, 3 and 27, from the Bahamas.

SERPA HOFFMANNI Fowler.

1934. *Serpa hoffmanni* Fowler, Proc. Acad. Nat. Sci. Philad., lxxxv., 1933 (1934), 282, fig. 43. North Atlantic Ocean. 781 fathoms.

SERPA IDOSTIGMA (Parr).

1931. *Lampanyctus idostigma* Parr, Bull. Bingham Oceanogr. Coll., ii., 4, 26, fig. 13, on page 33. West of America.

SERPA ISELINI (Parr).

1934. *Lampanyctus iselini* Parr, Bull. Mus. Comp. Zool., lxxvii., 2, 1934, 60, fig. 7. North Atlantic.

SERPA JOUBINI (Angel and Verrier).

1931. *Lampanyctus joubini* Angel and Verrier, Ann. Inst. Oceanogr. (n.s.), x., 5, 127, fig. 3. North of New Guinea.

SERPA MEDITERRANEA (Borodin).

1928. *Lampanyctus gaussi* var. *mediterranea* Borodin, Bull. Vanderbilt Oceanogr. Mus., i., 1928, 12. Sardinia.
[*Lampanyctus peculiaris* Borodin, Proc. N. Engl. Zool. Club, x., Jan. 22, 1929, 111, Mid-Atlantic, has been demonstrated by Parr (Bull. Mus. Comp. Zool., lxxvii., 2, 1934, 48), to be a synonym of *crocodilus* Risso.]

SERPA PARVICAUDA (Parr).

1931. *Lampanyctus omostigma parvicauda* Parr, Bull. Bingham Oceanogr. Coll., ii., 4, 1931, 26, fig. 9. West of America.

SERPA PIABILIS (Whitley).

1931. *Lampanyctus piabilis* Whitley, Rec. Austr. Mus., xviii., 1931, 103, fig. 1. Macquarie Island.

SERPA POLYPHOTIS (Beebe).

1932. *Lampanyctus polyphotis* Beebe, Zoologica, xiii., 4, 1932, 67, fig. 14. Bermuda.

SERPA REINHARDTI (Jordan).

1921. *Nyctimaster reinhardtii* Jordan, Proc. U.S. Nat. Mus., lix., 1921, 645, fig. 2. Hawaii.

SERPA SEPTILUCIS (Beebe).

1932. *Lampanyctus septilucis* Beebe, Zoologica, xiii., 4, 68, fig. 15. Bermuda.

SERPA TAANINGI (Parr).

1929. *Lampanyctus taaningi* Parr, Proc. U.S. Nat. Mus., lxxvi., 3 and 27. Bahamas

[For *Lampanyctus macropterus taningi* Angel and Verrier, non Parr, see *Serpa freta*, supra.]

SERPA TURNERI Fowler.

1934. *Serpa turneri* Fowler, Proc. Acad. Nat. Sci. Philad., lxxxv., 1933 (1934), 285, fig. 45. Philippine Islands.

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- Whitley, G. P. Studies in Ichthyology, No. 4. *Rec. Austr. Mus.*, xviii., 3, 1931, 96-133 (*Lampanyctus piabilis* nov. from Macquarie Island, 103, fig. 1).
- Whitley, G. P. Studies in Ichthyology, No. 7. *Rec. Austr. Mus.*, xix., 1, 1933, 60-112 ("Post abdominal (PA)"; photophores defined on p. 63 and the genus *Serpa* Cloquet, 1827, established on p. 64).

EXPLANATION OF TEXT-FIGURE.

Serpa conspicua Whitley. Holotype, 186 mm. in standard length, from off Kaikoura, New Zealand.

Gilbert P. Whitley, del.